APPENDIX

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	)	
	)	
HYND, Ian et al.	)	
	)	Group Art Unit: 2615
	)	
Serial No.: 10/561,407	)	Examiner: ROBINSON, Ryan C.
	)	
Filed: May 2, 2006	)	

For: **IMPROVEMENTS TO LOUDSPEAKER DRIVER ASSEMBLIES**

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

DECLARATION OF IAN HYND

I, Ian Hynd, hereby declare and state as follows:

1. I am a resident of the United Kingdom and reside in Edinburgh.

2. I am currently Technical Director at SFX Technologies (hereafter, "Company"). The Company undertakes loudspeaker development and makes loudspeaker driver assemblies.

3. I have a Bachelor of Science degree in Industrial engineering from Napier University.

4. In 2000, I started working at Company as Technical Director. My principle job duties are technical management for Audio products, and I continue working in the same capacity. I am and have been very familiar with the state of the art of acoustical driver assemblies for many years.

5. I am submitting this Declaration to explain the prior art cited by the Examiner in the above-identified application and the unexpected results provided by the Company's acoustical driver assemblies when the coupler has a Shore A hardness of no more than 20.

6. WO 03/005764 to Browne et al. is cited by the Examiner for the statement at (page 2, lines 27 to 29; page 3, lines 1 to 2). Despite assertions to the contrary, based on this passage, the Examiner cannot properly describe Claim 31 as obvious to one of ordinary skill in the art. Considering the referenced portion of Browne closely, Browne states "[t]he membrane is suitably formed of an elastomeric material, for example polyurethane or a silicone rubber, and the portion of the membrane between the foot and the surface may be of either the flexible elastomeric material <u>or a harder or softer portion of different material from the rest of the membrane to achieve the desired acoustic coupling</u>". Thus, Browne shows no clear understanding of the effect that reducing shore hardness of the elastomer has on the audio quality so as to provide a clear direction to the skilled reader to vary the hardness of the elastomeric material itself, but rather a direction to use a harder or softer portion of different material. In other words, Browne directs the reader to use a different material and to vary the hardness of the different material. Browne is unclear as to whether or not the 'different material' is a resilient (e.g. elastomeric) material as is required by claim 31 let alone make any mention of the specific hardness. Thus, one of ordinary skill in the art of acoustical driver assemblies would not study Browne and come to the same conclusions as the Examiner because Browne says nothing of the hardness of the resilient material.

7. In order to create the attached graphs, we tested a driver apparatus with a coupler formed of a resilient material, the coupler being configured to, in use, couple movement of the actuator to an acoustic radiator to cause the acoustic radiator to operate in a distributed mode fashion, in which the coupler has a Shore A hardness of no more than 20 in addition to the other values. More specifically, we measured the loss in sound pressure level transmitted to an aluminum panel, which formed the acoustic radiator, for couplers having different Shore A hardness values that varied between 1 Shore A and 29 Shore A. The measured values for sound pressure level in dB were plotted against Shore A hardness values. The first graph enclosed with the present Declaration shows the plotted values for sound pressure level. In addition, we measured the percent total harmonic distortion (THD) of an acoustic signal transmitted from the actuator to the acoustic radiator through the coupler for couplers having different Shore A hardness values that varied between 1 Shore A and 29 Shore A. The measured values for percent THD were plotted against the Shore A hardness values. The second graph enclosed with the present Declaration shows the plotted values for percent THD. The graphs contain what the

applicant believes to be experimental inaccuracies (e.g., in the values for THD at 23, 25, 27 and 29 Shore A) and anomalous points (e.g., in the values for THD at 11 and 17 Shore A).

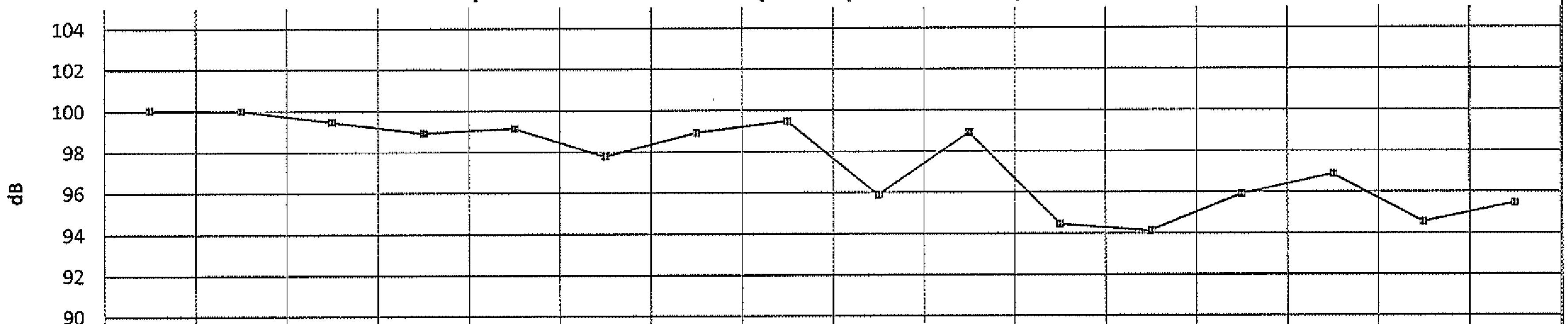
8. Irrespective of the experimental inaccuracies and the anomalous points, the graphs show that there is a step change in performance of driver apparatus according to claim 31, which comprises a coupler having a Shore A hardness of no more than 20, when driving a distributed mode (DM) loudspeaker compared with driver apparatus comprising a coupler having a Shore A hardness of more than 20. The statistical change in sound pressure of 6dB is significant; more significant is the reduction in total harmonic distortion from 32% to 2.5%. Such a step change in improvement represents more than merely selecting an appropriate hardness to realize a desired acoustical coupling, e.g., as might be the case were there to be a linear relationship between hardness and each of THD and sound pressure level. Such a change is a significant and practical advantage that is unexpected to one of ordinary skill in the art.

9. I declare that all statements made herein of my own knowledge are true and all statements made on information and belief are believed to be true; and, further, that these statements were made with the knowledge that willful false statements and the like are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the above-identified application and the patent issuing thereon.

Dated: January 27th, 2009

Name:

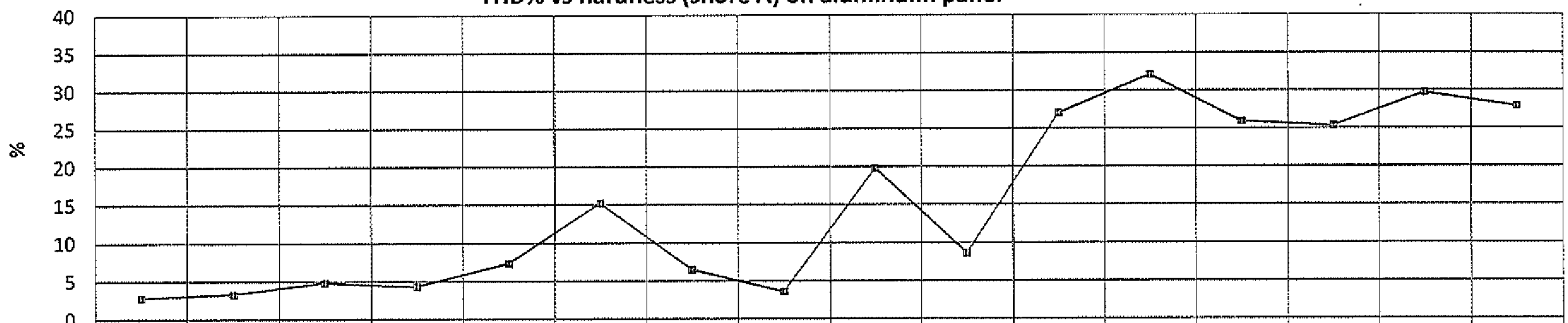
Sound pressure level vs hardness (shore A) on aluminuim panel



	0 shore A	2 shore A	4 shore A	6 shore A	8 shore A	10 shore A	12 shore A	14 shore A	16 shore A	18 shore A	20 shore A	22 shore A	24 shore A	26 shore A	28 shore A	30 shore A
SPL	100.05	100.01	99.47	98.92	99.14	97.77	98.92	99.48	95.88	98.92	94.47	94.14	95.9	96.87	94.54	95.46

hardness (shore A)

THD% vs hardness (shore A) on aluminuim panel



	0 shore A	2 shore A	4 shore A	6 shore A	8 shore A	10 shore A	12 shore A	14 shore A	16 shore A	18 shore A	20 shore A	22 shore A	24 shore A	26 shore A	28 shore A	30 shore A
THD%	2.8	3.3	4.8	4.3	7.3	15.2	6.5	3.6	19.8	8.6	27	32.1	25.9	25.3	29.7	27.9

hardness (shore A)